



# inter-office communication



Ohio Department of Transportation

To: Mr. M. Whistine, Adm. Bureau, D-5 Date: 11-10-99

From: Julie Gwinn, Bridge Engineer By: Albert Abel, Bridge Specialist

Subject: Bridge Repaired

The following information is provided:

1. County: Guernsey
2. Current Bridge Number: GUE-70-0943L
3. Current Structural File Number: 3001237
4. Feature Intersected: WB I-70 Over CR 35 and Wills Creek
5. Current Operating and Inventory Rating: 100%
6. Effective Date of Change: Immediately
7. Reason for Change: Damaged superstructure has been repaired.
8. New Structural File Number: N/A
9. New Operating and Inventory Rating: 150%, HS20.

JRG:aja  
W:\UPTO150.WPD

c: M. Whistine D-5  
File ✓

# NEWS



# RELEASE

## OHIO DEPARTMENT OF TRANSPORTATION

DISTRICT 5 OFFICE OF COMMUNICATIONS - 9600 JACKSONTOWN RD. S.E., P.O. BOX 306, JACKSONTOWN, OH 43030  
<http://www.dot.state.oh.us/dist5>

**FOR IMMEDIATE RELEASE**

**OCTOBER 18, 1999**

**\*\*\*I-70 WB RESTRICTED TO ONE LANE\*\*\***

(JACKSONTOWN)-The Ohio Department of Transportation District 5 has announced that a bridge on Interstate 70 in Guernsey County has been restricted to one lane due to an accident. The bridge is located on Interstate 70 just west of Interstate 77.

The bridge was hit from below causing structural damage. Due to the nature of the damage, the westbound driving (right) lane will be closed to traffic for approximately 30 days. Traffic will be maintained in the passing (left) lane. A 15' width restriction will be in effect.

###

**FOR FURTHER INFORMATION, CONTACT:**

Kevin Jones, Public Information Officer

(740) 323-4400 ext. 5207

e-mail: [kevjones@dot.state.oh.us](mailto:kevjones@dot.state.oh.us)

This release also available from our website at <http://www.dot.state.oh.us/dist5/d-5news.htm>

3001237

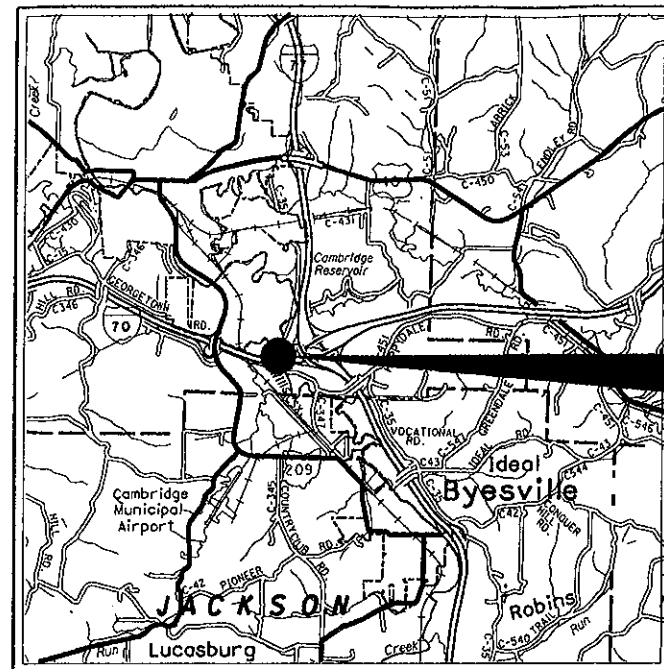
STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

**GUE-70-0943L  
AND RAMP A**  
CAMBRIDGE TOWNSHIP  
GUERNSEY COUNTY

PROJECT DESCRIPTION

HEAT STRAIGHTENING OF DAMAGED GIRDERS,  
REPLACING DAMAGED CROSS FRAMES, OZEU  
SPOT PAINTING AND RELATED WORK.

*FOREST CITY ERECTORS  
STARTED WORK 10-27-99*



LOCATION MAP

LATITUDE:     "     LONGITUDE:     "  
SCALE IN MILES

INDEX OF SHEETS:

TITLE SHEET \_\_\_\_\_ 1  
GENERAL NOTES \_\_\_\_\_ 2-3  
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TYPICAL DETAILS \_\_\_\_\_ 4-9

*3001237*

*PID# 20995*

*Sale Date*

*10-28-99 and Award*

*Proj No#*

*9019(99)*

*Project Cost*

*\$ 330,000*

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE  
OF OHIO, DEPARTMENT OF TRANSPORTATION,  
INCLUDING CHANGES AND SUPPLEMENTAL SPECI-  
FICATIONS LISTED IN THE PROPOSAL SHALL  
GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE  
THAT THE MAKING OF THIS IMPROVEMENT WILL  
NOT REQUIRE THE CLOSING OF TRAFFIC OF THE  
HIGHWAY AND THAT PROVISIONS FOR THE  
MAINTENANCE AND SAFETY OF TRAFFIC WILL  
BE SET FORTH ON THE PLANS AND ESTIMATES.

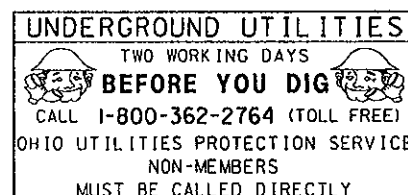
PORTION TO BE IMPROVED \_\_\_\_\_  
INTERSTATE & DIVIDED HIGHWAY \_\_\_\_\_  
UNDIVIDED STATE & FEDERAL ROUTES \_\_\_\_\_  
OTHER ROADS \_\_\_\_\_

DESIGN DESIGNATION

CURRENT ADT (1997) \_\_\_\_\_ 24800  
DESIGN YEAR ADT (2017) \_\_\_\_\_ 34200  
DESIGN HOURLY VOLUME (2017) \_\_\_\_\_ 2480  
DIRECTIONAL DISTRIBUTION \_\_\_\_\_ EQUAL  
TRUCKS (24 HOUR B&C) \_\_\_\_\_ 8478  
DESIGN SPEED \_\_\_\_\_ 65 MPH  
LEGAL SPEED \_\_\_\_\_ 65 MPH

DESIGN FUNCTIONAL CLASSIFICATION - INTERSTATE

DESIGN EXCEPTIONS - NONE



PLAN PREPARED BY:  
DISTRICT NO. 5  
OHIO DEPARTMENT OF  
TRANSPORTATION

ENGINEERS SEAL:

SIGNED:  
DATE:

STANDARD CONSTRUCTION DRAWINGS

SUPPLEMENTAL  
SPECIFICATIONS

SPECIAL  
PROVISIONS

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_ DISTRICT DEPUTY DIRECTOR

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_ DIRECTOR, DEPARTMENT OF  
TRANSPORTATION

FEDERAL PROJECT NO.

PID NO.

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT

**GUE-70-0943L  
AND RAMP A**

1  
9

GENERAL NOTES

REFERENCE

DETAILED DRAWINGS OF THE EXISTING STRUCTURES MAY BE INSPECTED IN THE DISTRICT 5 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, JACKSONTOWN, OHIO.

DESIGN SPECIFICATIONS

THESE STRUCTURE MODIFICATIONS CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, AND THE OHIO SUPPLEMENT TO THESE SPECIFICATIONS.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 105.02. CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURES BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

GENERAL PROVISIONS

THE CONTRACTOR'S ATTENTION IS CALLED TO ALL OF SECTION 100 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION.

MOBILIZATION

THE CONTRACTOR SHALL ON ANY CONTRACT FOR WHICH HIS BID EXCEEDS \$50,000.00 INCLUDE AN AMOUNT TO COVER ANY APPLICABLE EXPENDITURES REFERRED TO UNDER ITEM 624 OF THE 1997 CONSTRUCTION AND MATERIAL SPECIFICATIONS. PAYMENT SHALL BE THE LUMP SUM BID PRICE FOR ITEM 624, MOBILIZATION.

CONSTRUCTION NOTIFICATION

IN ORDER FOR ODOT TO PROPERLY PERMIT OVERSIZE LOADS, PREPARE PROPER SIGNING WHEN REQUIRED AND FURTHER TO NOTIFY THE GENERAL MOTORING PUBLIC. THE CONTRACTOR SHALL NOTIFY (IN WRITING) THE DISTRICT 5 HIGHWAY MANAGEMENT ADMINISTRATOR WITH COPIES FOR THE DISTRICT 5 ROADWAY SERVICES MANAGER AND PROJECT ENGINEER NOT LESS THAN 21 DAYS BEFORE ACTIVATING SUCH CLOSURE OR LANE RESTRICTION.

SEND NOTIFICATION TO: KIETH GEIGER  
DISTRICT 5 CONSTRUCTION ENGINEER  
P. O. BOX 306  
JACKSONTOWN, OHIO 43030  
PHONE: (614) 323-5240

REMOVED MATERIALS

ALL REMOVED MATERIALS UNLESS NOTED ELSEWHERE IN THE PLANS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE JOB SITE.

SPECIFICATIONS

ALL MATERIAL AND ITEMS OF WORK SHALL CONFORM TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, DATED JANUARY 1, 1997.

ITEM SPECIAL - HEAT STRAIGHTENING OF EXISTING STEEL

THIS ITEM SHALL CONSIST OF HEAT STRAIGHTENING THE WEB, STIFFENERS AND BOTTOM FLANGE OF THE DAMAGED GIRDER(S). HEAT STRAIGHTENING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH 513.06 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE PROPOSAL NOTE BY PERSONS HAVING DEMONSTRATED SUCH CAPABILITIES AND HAVING A RECORD OF SUCCESSFUL ACCOMPLISHMENT IN HEAT STRAIGHTENING. SEE PROPOSAL NOTE 528-9I.

PROPOSED SEQUENCE OF OPERATIONS

INSTALL TRAFFIC CONTROL ON C.R. 35 FOR DETOUR OF TRAFFIC.

- GUE-70-0943L
1. REMOVE DAMAGE CROSSFRAMES, PORTIONS OF VERTICAL STIFFENERS.
  2. HEAT STRAIGHTEN THE PORTION OF THE GIRDER (WEB AND FLANGE).
  3. REMOVE PORTION OF THE WEB AS DETAILED IN THE PLANS.
  4. REPLACE PORTION OF THE WEB PLATE.
  5. INSTALL NEW CROSSFRAMES AND STIFFENERS
  6. PAINT BRIDGE

- GUE-70-0943A
1. REMOVE DAMAGE CROSSFRAME(S)
  2. HEAT STRAIGHTEN PORTION OF THE GIRDERS (WEB AND FLANGE)..
  3. STRAIGHTEN OUTSIDE VERTICAL STIFFENERS.
  - 4.. RE-WELD GUSSET PLATES.
  5. REPLACE CROSSFRAME(S).
  6. PAINT BRIDGE
  7. OPEN ROAD TO BOTH BRIDGES.

OZEU PAINT REPAIR PROCEDURES

THE PAINT REPAIR SHALL BE AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 815 ENTITLED "FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU". THE FINISH COAT COLOR SHALL BE BLUE FS-595A-15450 AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 815. THE AREAS TO BE PAINTED ON BOTH SIDES OF THE BEAM ARE TO EXTEND 2'-0" MINIMUM OUTSIDE OF THE AREAS HEATED TO INCLUDE ALL AREAS OF HEAT DAMAGED PAINT AND WHERE RUST HAS GROWN UNDER THE EXISTING PAINT.

GENERAL NOTES

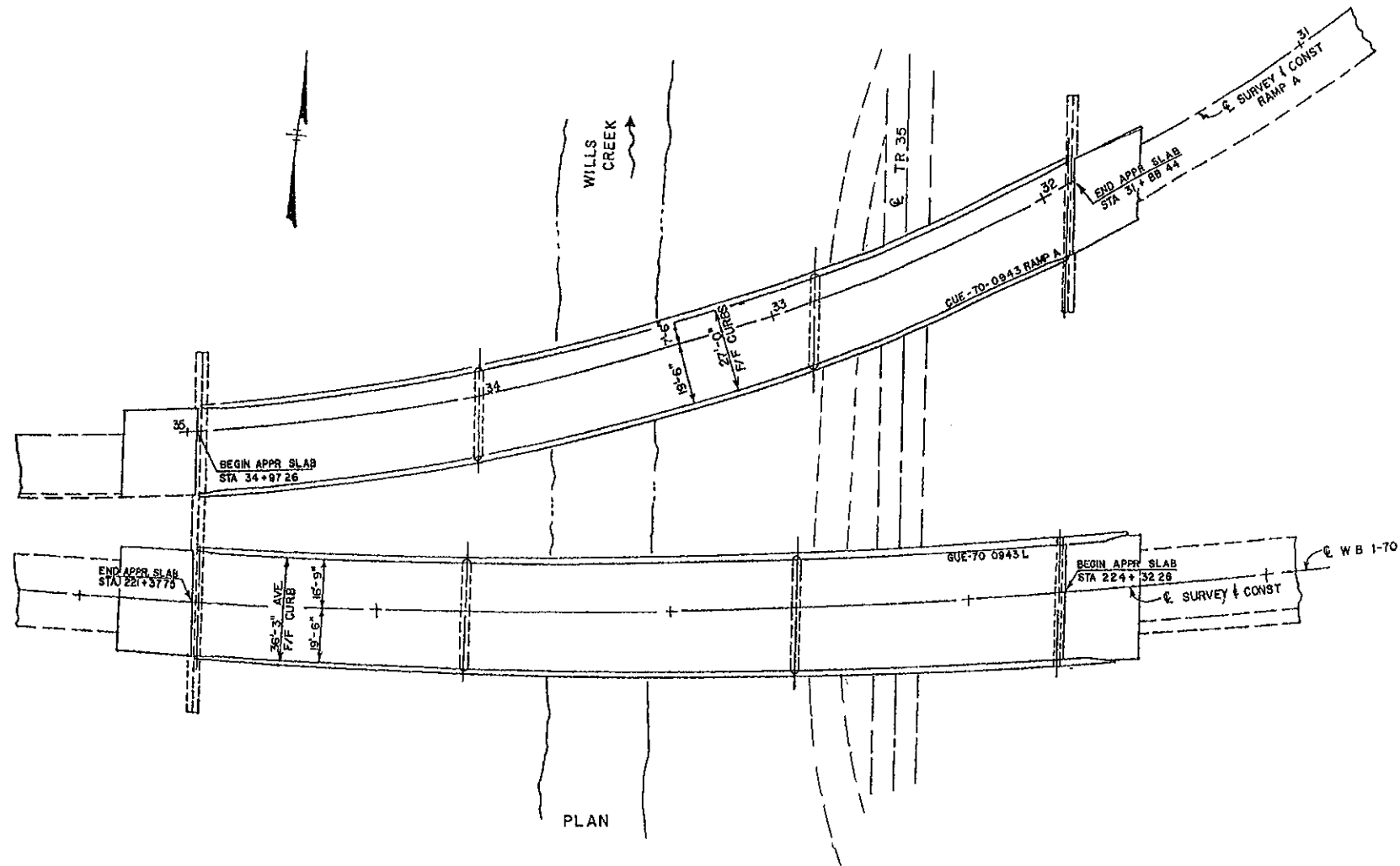
GUE-70-0943L  
AND RAMP A

THIS ITEM SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE WEB PLATES AS DETAILED ON SHEETS 5 AND 6. PRIOR TO REMOVAL OF THE DAMAGED SECTION OF THE GIRDER, THE CONTRACTOR SHALL FIELD VERIFY THAT THE PLAN DIMENSIONS WILL REMOVE ALL THE DAMAGED AREA OF THE GIRDER AND HAVE THE REPLACEMENT WEB SECTIONS ON SITE. AFTER REMOVAL OF THE STRUCTURAL STEEL, THE SURFACES SHALL BE LEFT FREE OF ANY ROUGH AREAS. THE ENGINEER SHALL DETERMINE IF THE AREAS ARE SMOOTH ENOUGH TO ENSURE PROPER INSTALLATION OF THE NEW STRUCTURAL STEEL. A RADIOGRAPHIC INSPECTION AND MAGNETIC PARTICLE INSPECTION SHALL BE REQUIRED TO ALL WELDS AS PER 513.21. ALL EQUIPMENT, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE INCLUDED FOR PAYMENT WITH ITEM 863 STRUCTURAL STEEL, MISC.: GIRDER REPAIR, LUMP SUM.

## GENERAL SUMMARY

**GUE-70-0943L  
AND RAMP A**

 $\frac{3}{9}$



GUE-70-0943L  
AND RAMP A

GENERAL PLAN AND ELEVATION  
BRIDGE NO. S GUE-70-0943L/A

DESIGNED  
DDH

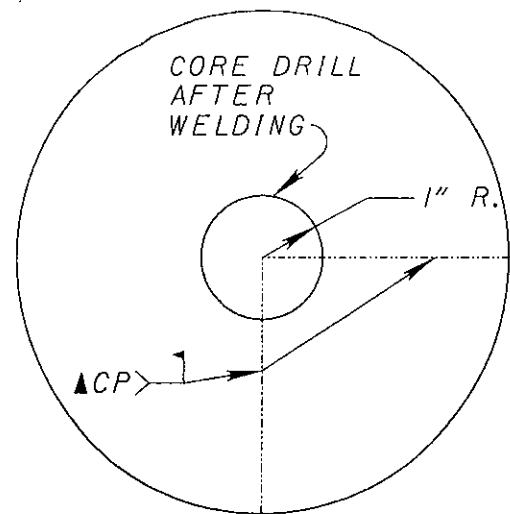
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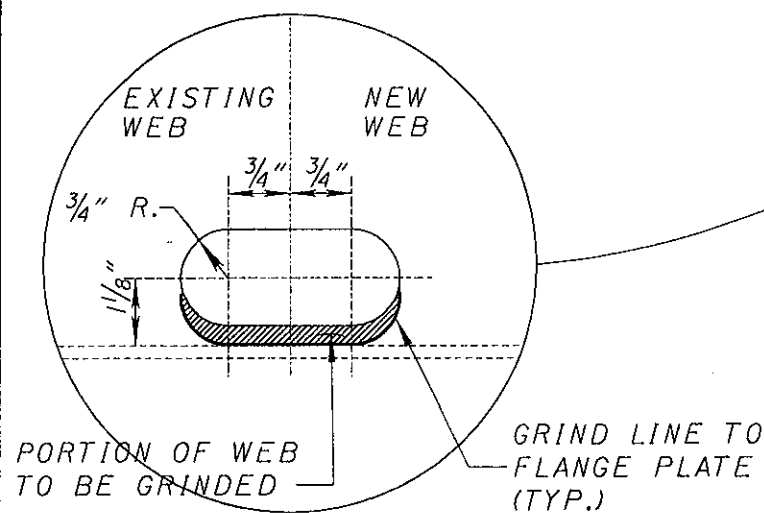
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DATE  
10-27-99

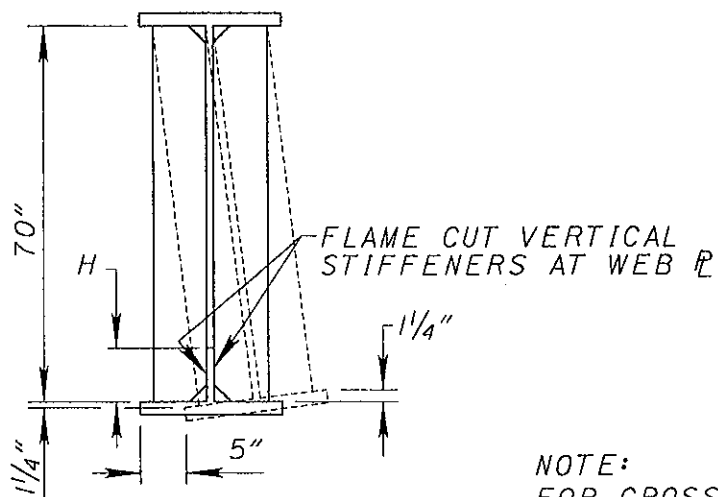
DESIGN AGENCY  
OHIO DEPARTMENT  
OF TRANSPORTATION  
DIST. 5 BRIDGE DEPT.



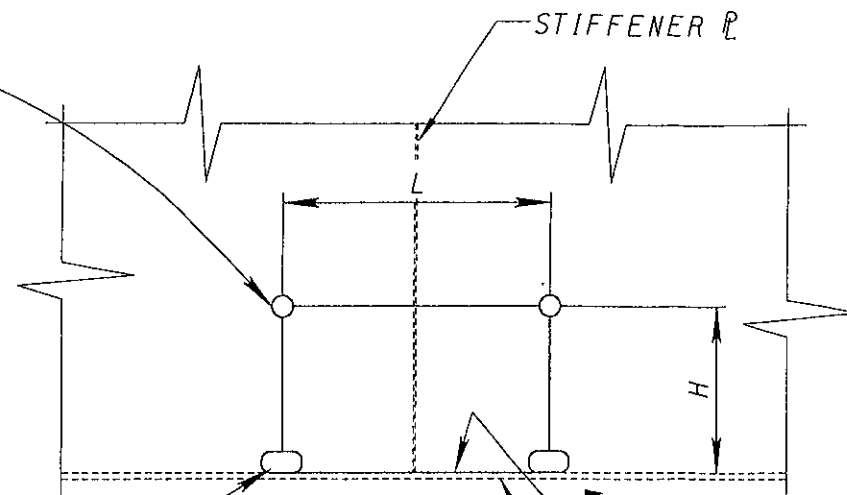
DETAIL A



DETAIL B



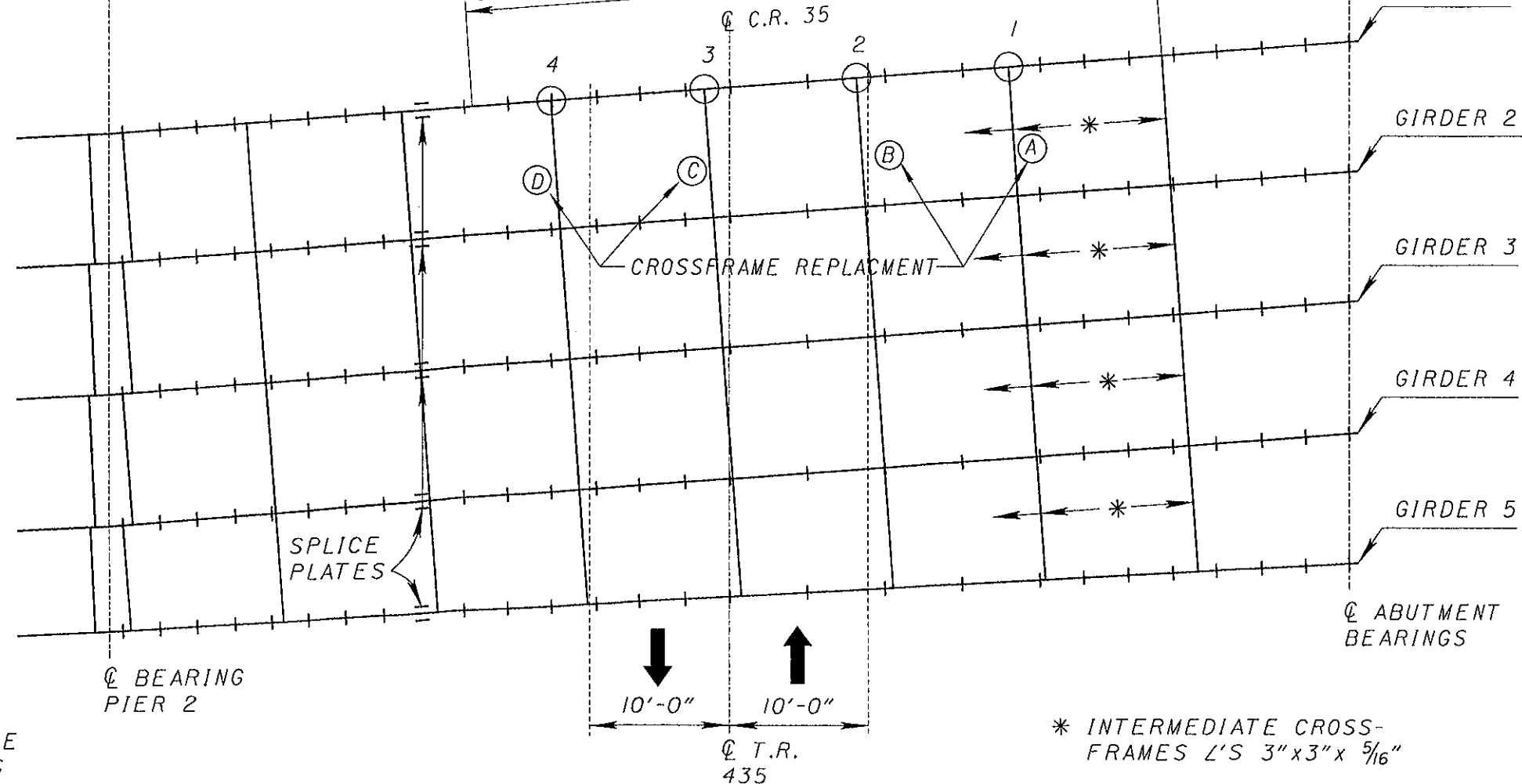
NOTE:  
FOR CROSS FRAME  
WELDING DETAILS  
SEE SHEET 7.



FLANGE  $\bar{P}$  TO BE HEAT  
STRAIGHTENED IN PLACE

89'-5<sup>5</sup>/<sub>16</sub>" C/C BEARINGS SPAN 3

51'-0"± (AREA OF GIRDER 1 TO BE HEAT STRAIGHTENED)

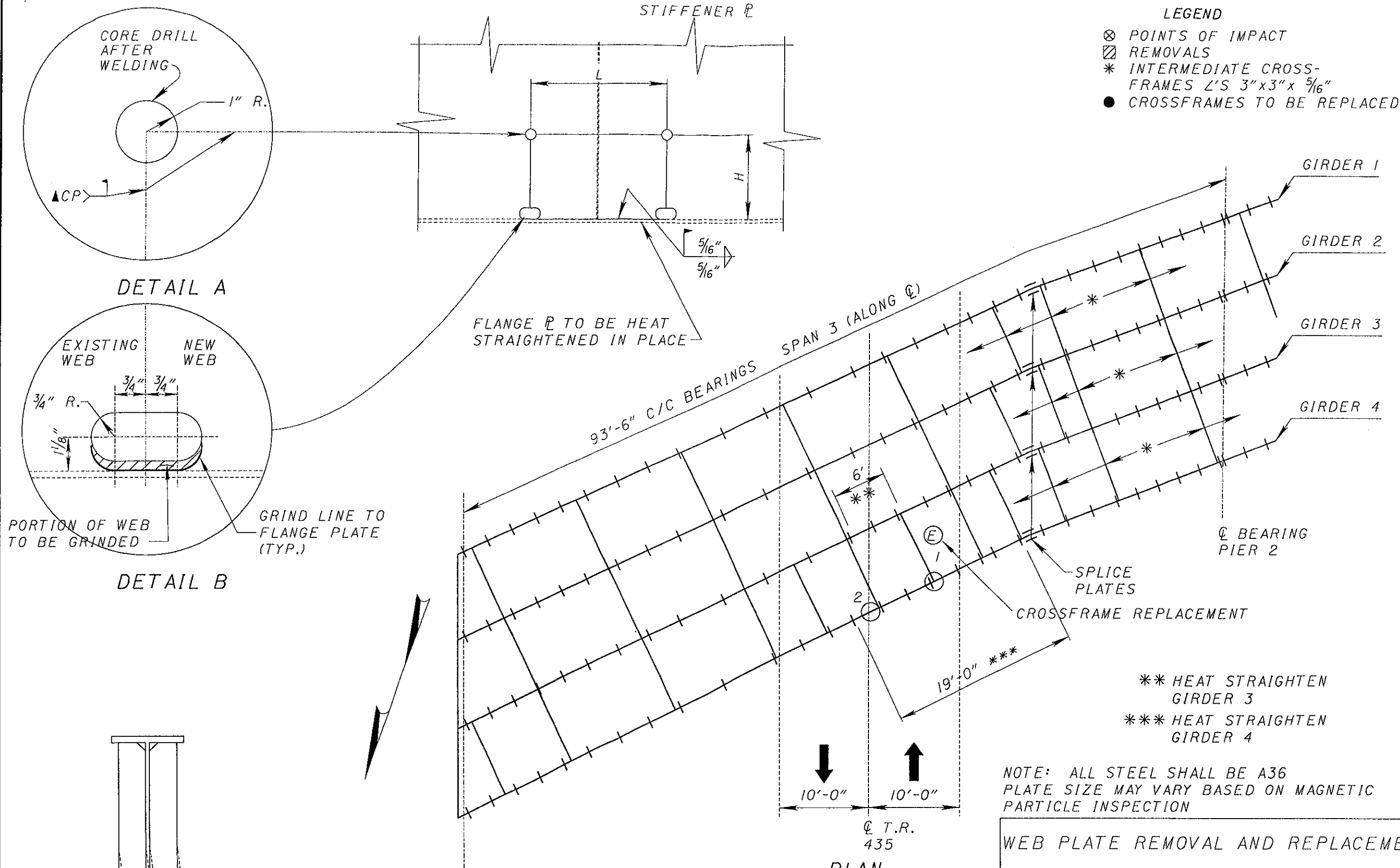


PLAN

# WEB PLATE REMOVAL AND REPLACEMENT

| LOCATION | WEB PLATE SIZE<br>L X H X $\frac{3}{8}$ " | WEIGHTS   |
|----------|-------------------------------------------|-----------|
| 1        | 1'-0" X 6"                                | 7.6 LBS.  |
| 2        | 2'-0" X 6"                                | 15.2 LBS. |
| 3        | 2'-0" X 6"                                | 15.2 LBS. |
| 4        | 1'-0" X 6"                                | 7.6 LBS.  |

NOTE: ALL STEEL SHALL BE A36 STEEL  
PLATE SIZE MAY VARY BASED ON MAGNETIC PARTICLE INSPECTION



- LEGEND
- ⊗ POINTS OF IMPACT
  - ▨ REMOVALS
  - \* INTERMEDIATE CROSS-FRAMES L'S 3"x3"x 5/16"
  - CROSSFRAMES TO BE REPLACED

NOTE:  
FOR CROSS FRAME  
WELDING DETAILS  
SEE SHEET 7.

NOTE: ALL STEEL SHALL BE A36  
PLATE SIZE MAY VARY BASED ON MAGNETIC  
PARTICLE INSPECTION

| WEB PLATE REMOVAL AND REPLACEMENT |                                |           |
|-----------------------------------|--------------------------------|-----------|
| LOCATION                          | WEB PLATE SIZE<br>L X H X 3/8" | WEIGHTS   |
| 1                                 | 1'-6" X 6"                     | 11.5 LBS. |
| 2                                 | 8" X 6"                        | 5.1 LBS.  |

ITEM 863, STRUCTURAL STEEL, MISCELLANEOUS  
LEVEL FABRICATION, AS PER PLAN

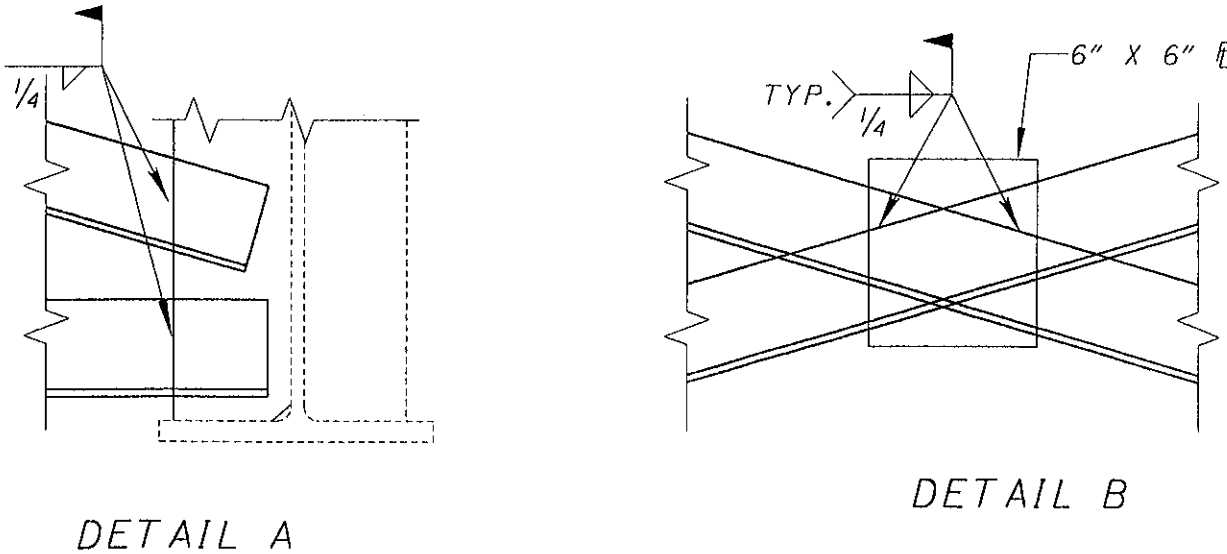
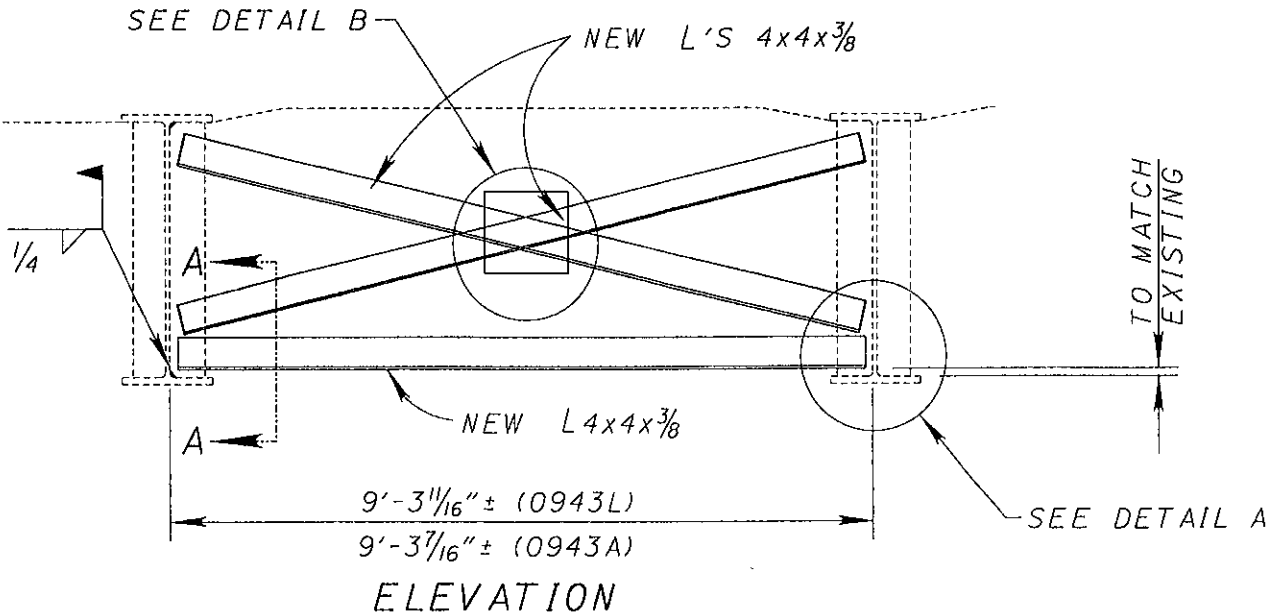
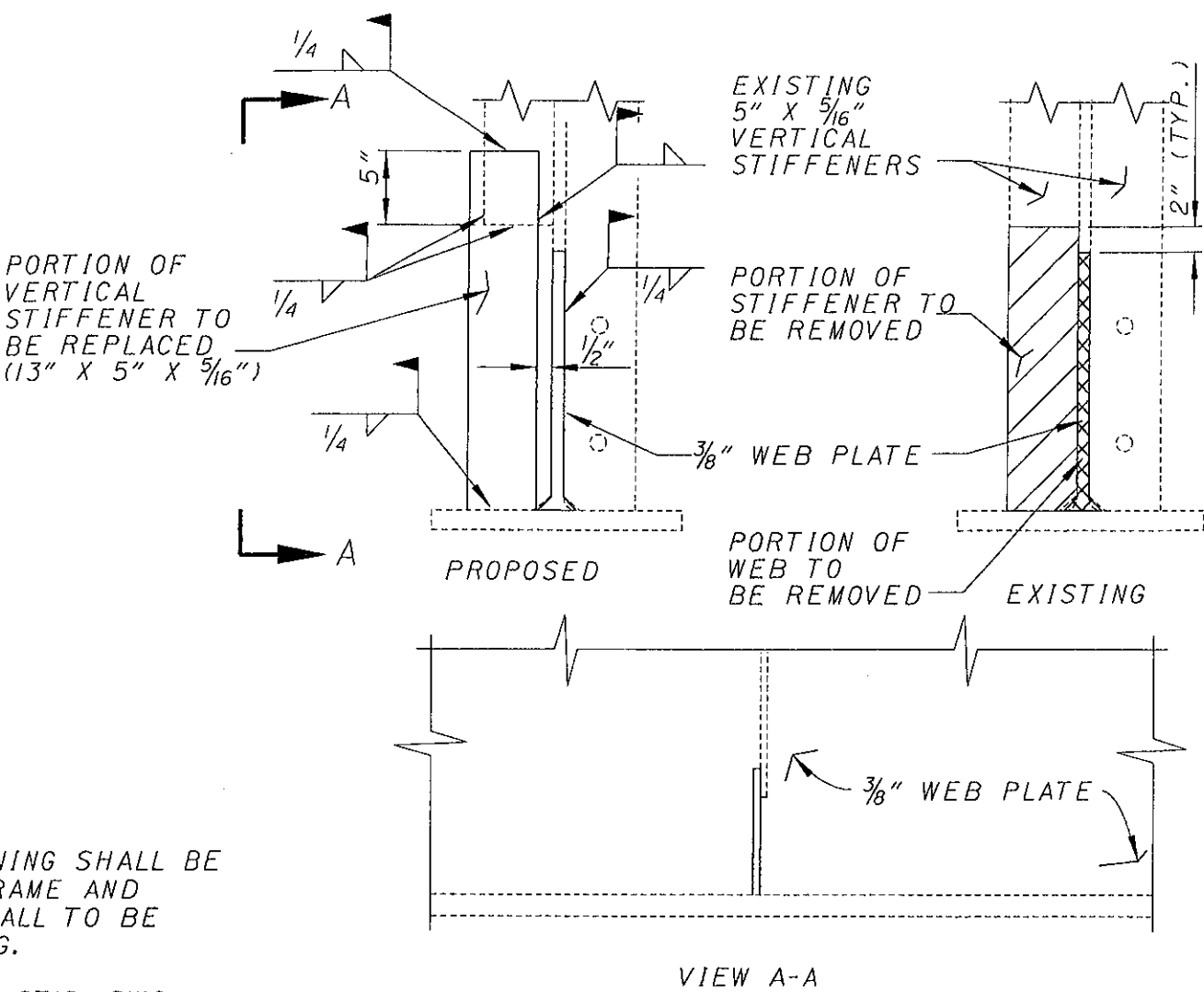
THIS ITEM SHALL INCLUDE REMOVING THE DAMAGED CROSSFRAMES, PORTIONS OF THE OUTSIDE STIFFENERS, WELDS AND REPLACING THEM. THE CONTRACTOR SHALL FIELD VERIFY LENGTHS OF CROSSFRAMES AND STIFFENERS TO BE REPLACED PRIOR TO ORDERING MATERIALS. AFTER REPLACING THE CROSSFRAMES, ALL WELDS OF THE CROSSFRAME AND THE CROSSFRAMES IN THE IMMEDIATE AREA SHALL BE INSPECTED FOR CRACKS BY THE PROJECT ENGINEER. ANY CRACKED CROSSFRAME WELDS SHALL BE REMOVED AND REWELDED AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN DURING THE REMOVAL OPERATION SO AS NOT TO DAMAGE THE GIRDERS. ANY DAMAGE TO THE GIRDERS CAUSED BY THE REMOVAL OPERATION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL MATERIALS, TOOLS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE DESCRIBED WORK ARE TO BE INCLUDED IN ITEM 863, STRUCTURAL STEEL, MISCELLANEOUS LEVEL FABRICATION, AS PER PLAN. FOR LOCATION OF CROSSFRAME REPLACEMENTS SEE SHEETS 5 & 6.

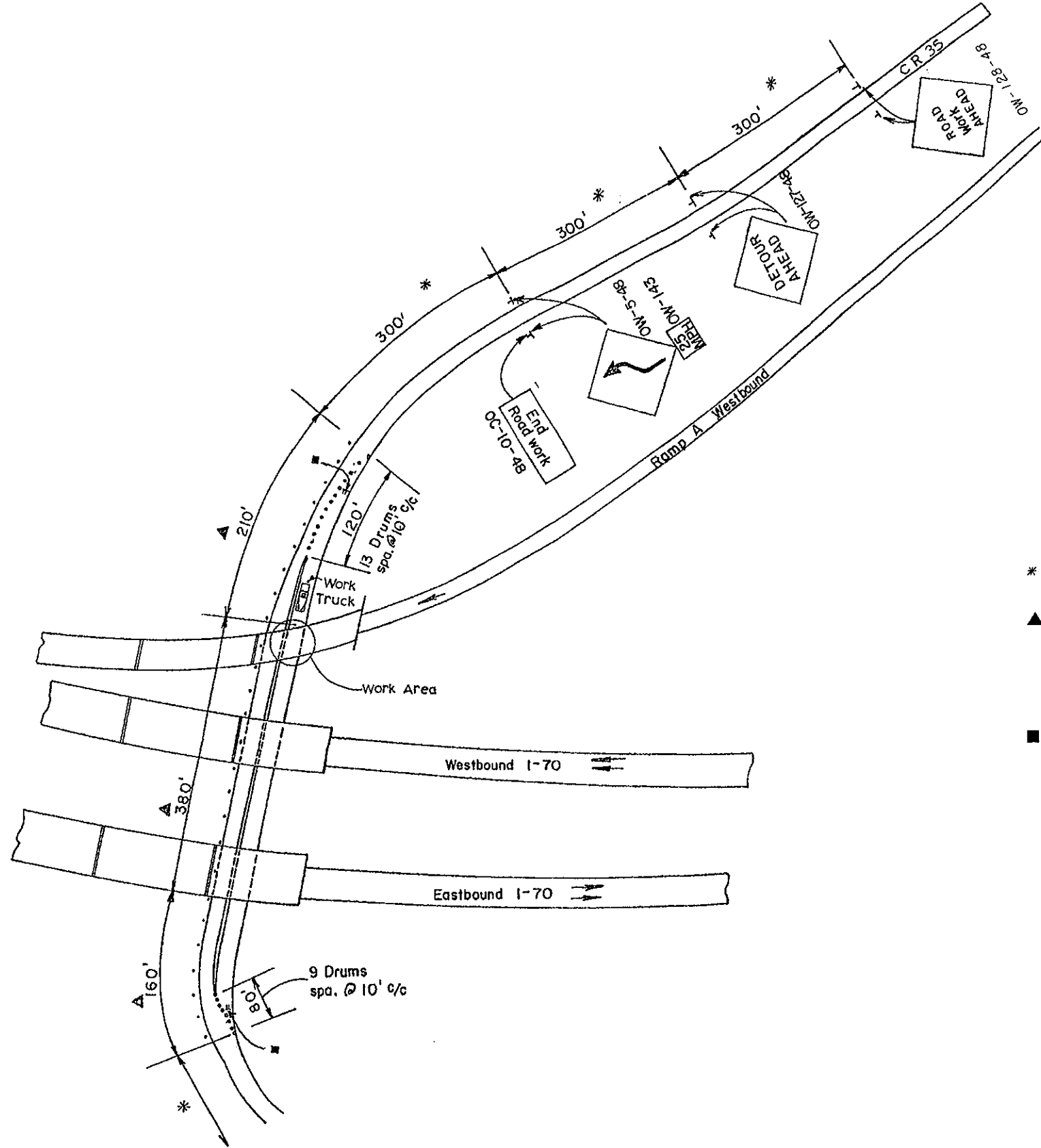
| CROSSFRAME REPLACEMENT |          |                                       |  |
|------------------------|----------|---------------------------------------|--|
| LOCATION               | QUANTITY | LENGTHS*                              |  |
| BR. NO. GUE-70-0943L   |          |                                       |  |
| A-D                    | 4        | 9'-3 <sup>5</sup> / <sub>16</sub> " ± |  |
| A-D                    | 8        | 10'-8 <sup>3</sup> / <sub>8</sub> " ± |  |
|                        |          |                                       |  |
|                        |          |                                       |  |
| BR. NO. GUE-70-0943A   |          |                                       |  |
| E                      | 1        | 9'-3"                                 |  |
| E                      | 1        | 10'-8"                                |  |
|                        |          |                                       |  |
|                        |          |                                       |  |

\* LENGTHS TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIAL.

NOTE:  
THE GIRDER HEAT STRAIGHTENING SHALL BE COMPLETED PRIOR TO CROSSFRAME AND STIFFENER REPAIR WHICH IS ALL TO BE COMPLETED PRIOR TO PAINTING.

FOR ADDITIONAL DETAILS, SEE ST'D. DWG. GSD-1-69, DATED 2-12-97.





- \* BOTH SIDES - (SAME AS OPPOSITE APPROACH)
- ▲ 26 - VERTICAL PANELS (BRIDGE END MARKER) SHALL BE SPACED AT 30' C/C THROUGH THE DETOUR SECTION AND SHALL BE INCLUDED FOR PAYMENT IN ITEM 614 MAINTAINING TRAFFIC
- PORTABLE FLASHING ARROW PANEL



**GUE-70-0943L  
AND RAMP A**

**TRAFFIC CONTROL**  
BRIDGE NO. GUE-70-0943L AND RAMP A

DESIGNED  
DDH

DRAWN  
DDH

REVIEWED  
DDH

DATE  
10-27-99

OHIO DEPARTMENT  
OF TRANSPORTATION  
DIST. 5 BRIDGE DEPT.

THE FLASHING ARROW PANEL SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FLASHER PANEL
- B. LAMPS
- C. CONTROLS
- D. POWER SUPPLY
- E. MOUNTING

**A. FLASHER PANEL**

THE FLASHER PANEL SHALL BE OF EXTERIOR TYPE PLYWOOD OR CORROSION RESISTANT METAL CONSTRUCTION OF ADEQUATE DESIGN AND STRENGTH. THE PANEL FINISH SHALL BE FLAT BLACK.

A FLASHER PANEL SHALL BE ONE OF THREE SIZES. THE TYPE A PANEL SHALL BE A NOMINAL 24 INCHES HIGH BY 48 INCHES WIDE. TYPE B SHALL BE A NOMINAL 30 INCHES HIGH BY 60 INCHES WIDE. TYPE C SHALL BE A NOMINAL 48 INCHES HIGH BY 96 INCHES WIDE.

**B. LAMPS**

LAMPS SHALL BE ANSI NUMBER 4412A FOR TYPES B AND C AND 4415A FOR TYPE A. THE LAMPS SHALL BE FITTED WITH AN UPPER HOOD OF NOT LESS THAN 180° AT LEAST FIVE INCHES LONG. THE LAMPS SHALL BE SECURELY MOUNTED AND POSITIONED IN THE PANEL PERPENDICULAR TO THE PANEL FACE AND ORIENTED SO THAT THE LAMP LOCATION LUG (ON BACK OF LAMP) IS ON THE HORIZONTAL CENTER LINE THROUGH THE LENS. THE LUG WILL BE ON THE RIGHT SIDE OF THE LAMP AS VIEWED FROM THE FRONT.

THE LAMPS SHALL BE WIRED IN CIRCUITS THAT CAN BE SWITCHED TO DISPLAY ANY ONE OF THE FOLLOWING MESSAGES: LEFT ARROW, RIGHT ARROW, LEFT AND RIGHT ARROW, AND CAUTION BAR. A MINIMUM OF THREE INDICATOR LIGHTS SHALL BE PLACED ON THE BACK OF THE PANEL TO INDICATE WHICH MESSAGE MODE IS IN OPERATION.

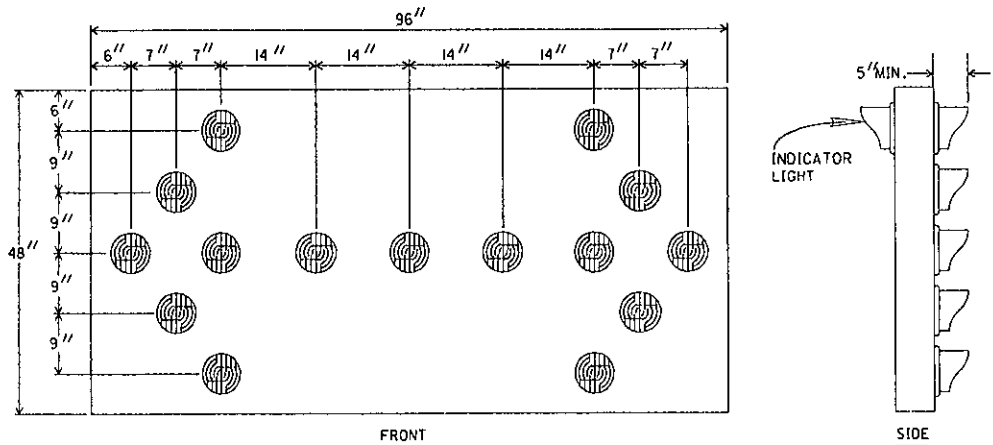
EACH PANEL SHALL CONTAIN THE FOLLOWING NUMBER OF LAMPS AS A MINIMUM: TYPE A - 12 LAMPS, TYPE B - 13 LAMPS, TYPE C - 15 LAMPS. LAMP SPACING DIMENSIONS ARE NOMINAL AND INTENDED TO ESTABLISH OVERALL SHAPE. VARIATIONS UP TO ONE INCH ARE ACCEPTABLE PROVIDING THE SHAPE IS NOT CHANGED.

**C. CONTROLS**

EACH FLASHING ARROW PANEL SHALL CONTAIN A FLASHER CONTROL AND A DIMMER CONTROL UNIT HOUSED IN A CABINET WHICH CAN BE LOCKED.

**FLASHER CONTROL**

THE FLASH RATE FOR THE SIGN PANEL SHALL BE 25 TO 40 FLASHES PER MINUTE. THE FLASHER SHALL NOT CAUSE ELECTROMAGNETIC INTERFERENCE. THE LAMPS SHALL HAVE A MINIMUM "ON TIME" OF 50% AND A MAXIMUM OF 66%.



**TYPE C PANEL**

**2. DIMMER CONTROL**

LAMP INTENSITY SHALL BE VARIABLE BY MEANS OF A PHOTOELECTRICALLY CONTROLLED DIMMING CIRCUIT WHICH SHALL REDUCE LAMP OUTPUT DURING LOW AMBIENT LIGHT CONDITIONS. THE PHOTOELECTRIC CONTROL SHALL BE CALIBRATED TO ACTUATE A LAMP DIMMING CIRCUIT AT 2 TO 5 AMBIENT FOOTCANDLES AND TO RESTORE THE LIGHT TO NORMAL AT 5 TO 10 AMBIENT FOOT CANDLES OR AS AN ALTERNATIVE, THE BRIGHTNESS OF THE LAMPS MAY BE CONTINUOUSLY VARIABLE AS AMBIENT LIGHT VARIES FROM DARK TO DAYLIGHT. A TIME DELAY SHALL BE BUILT INTO THE CONTROL TO PREVENT FALSE OPERATION DUE TO LIGHT FLASHES. THE DIMMING CIRCUIT SHALL INCLUDE A SWITCH WHICH SHALL OVERRIDE THE PHOTOELECTRIC CONTROL. THE DIMMING FEATURE SHALL BE DESIGNED TO REDUCE LAMP OUTPUT TO A LEVEL WHICH WILL NOT CAUSE SIGNIFICANT GLARE TO APPROACHING MOTORISTS.

**D. POWER SUPPLY**

THE FLASHING ARROW PANEL SHALL OPERATE FROM POWER SOURCES CAPABLE OF CONTINUOUSLY FURNISHING THE PROPER VOLTAGE TO THE LAMPS A MINIMUM OF 24 HOURS WITHOUT ATTENDANCE.

MOTOR GENERATORS, IF USED, SHALL BE OF MODERN DESIGN TO PROVIDE LOW EMISSION OF POLLUTANTS AND SHALL BE PROPERLY MUFFLED. THE MOTOR GENERATOR SHALL BE ENCLOSED IN A MESH ENCLOSURE WHICH CAN BE LOCKED. THE FUEL TANK SHALL HAVE A CAP WHICH CAN BE LOCKED. MOTOR GENERATORS SUPPLYING POWER TO A FLASHING ARROW SIGN SHALL NOT BE USED TO SUPPLY POWER TO OTHER EQUIPMENT. GASOLINE FUELLED ENGINES SHALL NOT BE USED.

**E. MOUNTING**

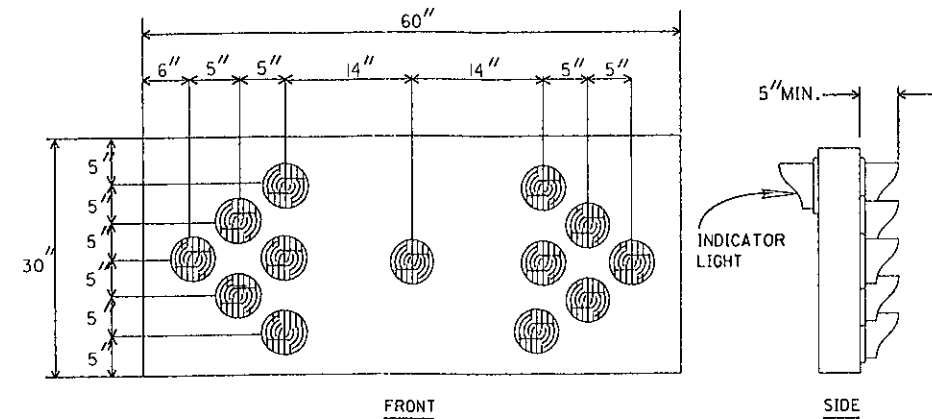
THE FLASHING ARROW PANEL MAY BE TRAILER OR VEHICLE MOUNTED OR MOUNTED ON A RIGID SUPPORTING DEVICE SUITABLE FOR MAINTAINING IT IN THE DESIGNATED POSITION. EACH OF THE MOUNTING METHODS SHALL BE SUITABLY STABLE SUCH AS TO PREVENT MOVEMENT DUE TO HIGH WINDS OR PASSAGE OF LARGE VEHICLES.

WHEN A TRAILER IS USED, CONSTRUCTION SHALL BE SUCH AS TO TRANSPORT THE FLASHING ARROW PANEL AND APPURTANCES ADEQUATELY AND LEGALLY AS WELL AS SUPPORT THEM PROPERLY DURING OPERATION. THE TRAILER SHALL BE EQUIPPED WITH DEVICES WHICH SHALL PROVIDE LEVELING AND STABILITY DURING OPERATION.

MINIMUM ARROW PANEL MOUNTING HEIGHT SHALL BE 7 FEET ABOVE THE PAVEMENT SURFACE (MEASURED TO THE BOTTOM OF THE PANEL).

**USE AND OPERATION**

THE FLASHING ARROW PANEL SHALL BE LOCATED AS SHOWN IN THE MAINTENANCE OF TRAFFIC DRAWINGS OR AS DIRECTED BY THE ENGINEER AND OPERATED CONTINUOUSLY DURING TRAFFIC MAINTAINED PERIODS. THE CONTRACTOR SHALL SUPPLY ALL FUEL, LUBRICANTS AND PARTS NECESSARY TO OBTAIN CONTINUOUS OPERATION AND SHALL PROVIDE ALL SERVICE. THE CONTRACTOR SHALL INSPECT THE OPERATION OF THE UNIT DAILY, INCLUDING WEEKENDS AND HOLIDAYS. HE SHALL ALSO ARRANGE WITH THE ENGINEER, AN ACCEPTABLE METHOD OF OBTAINING SERVICE FOR A MALFUNCTIONING PANEL WITHIN 30 MINUTES OF A REPORTED MALFUNCTION. LAMP INTENSITY SHALL BE ADJUSTED TO PROVIDE MINIMUM LEGIBILITY DISTANCES OF 1/2 MILE (TYPE A), 3/4 MILES (TYPE B) AND 1 MILE (TYPE C). THE CONTRACTOR SHALL PERFORM NIGHT INSPECTIONS TO VERIFY OR ADJUST DIMMING CONTROL SETTINGS DURING THE NIGHT FOLLOWING EACH POSITIONING OF THE UNIT AND WEEKLY THEREAFTER.



**TYPE B PANEL**

TYPE C PANELS SHALL BE USED FOR STATIONARY OPERATIONS ON HIGH SPEED (55 MPH OR GREATER), HIGH VOLUME ROADWAYS. TYPE B SHALL BE USED FOR STATIONARY OPERATIONS ON INTERMEDIATE SPEED (40-50 MPH) FACILITIES, AND TYPE A ON LOW SPEED (20-35 MPH) FACILITIES.

IN ADDITION, TYPE B PANELS SHALL BE USED FOR MOVING OPERATIONS ON FREEWAYS AND EXPRESSWAYS AND TYPE A FOR MOVING OPERATIONS ON OTHER FACILITIES.

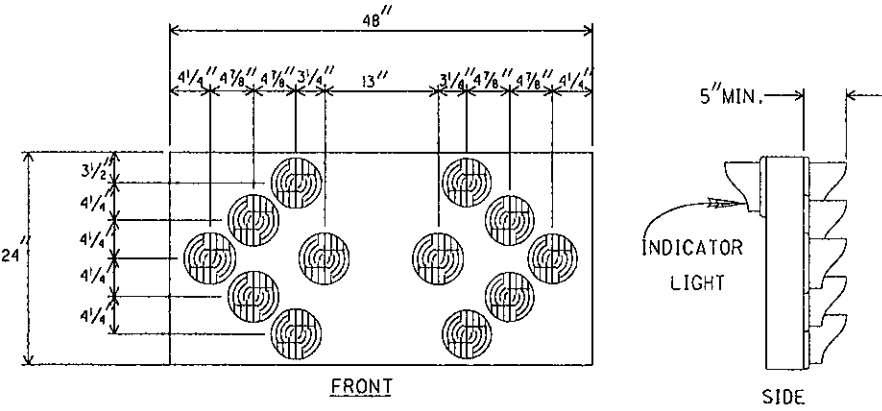
FLASHING ARROW PANELS ARE NOT TO BE USED ON TWO LANE-TWO WAY ROADWAYS.

WHEN LEFT UNATTENDED THE CONTROL CABINET, MOTOR GENERATOR ENCLOSURE AND FUEL TANK SHALL BE LOCKED.

TYPE A AND TYPE B PANELS USED IN MOVING OPERATIONS MAY BE POWERED BY THE VEHICLE'S ELECTRICAL SYSTEM BUT SHALL NOT BE LEFT UNATTENDED WHEN SO POWERED.

WHEN NOT IN USE, THE FLASHING ARROW PANEL SHALL BE STORED AT A LOCATION WHICH WILL NOT BE HAZARDOUS TO TRAFFIC OR PEDESTRIANS.

THE PANELS SHALL BE DESIGNED FOR OPERATION IN 100% HUMIDITY AND TEMPERATURES FROM -20 TO +130 DEGREES FAHRENHEIT.



**TYPE A PANEL**

REVISED BY:

DATE:

203510

FLASHING ARROW PANEL

PLAN INSERT SHEET

DATE

10/05/77  
 08/29/84  
 10/07/91  
 04/30/92



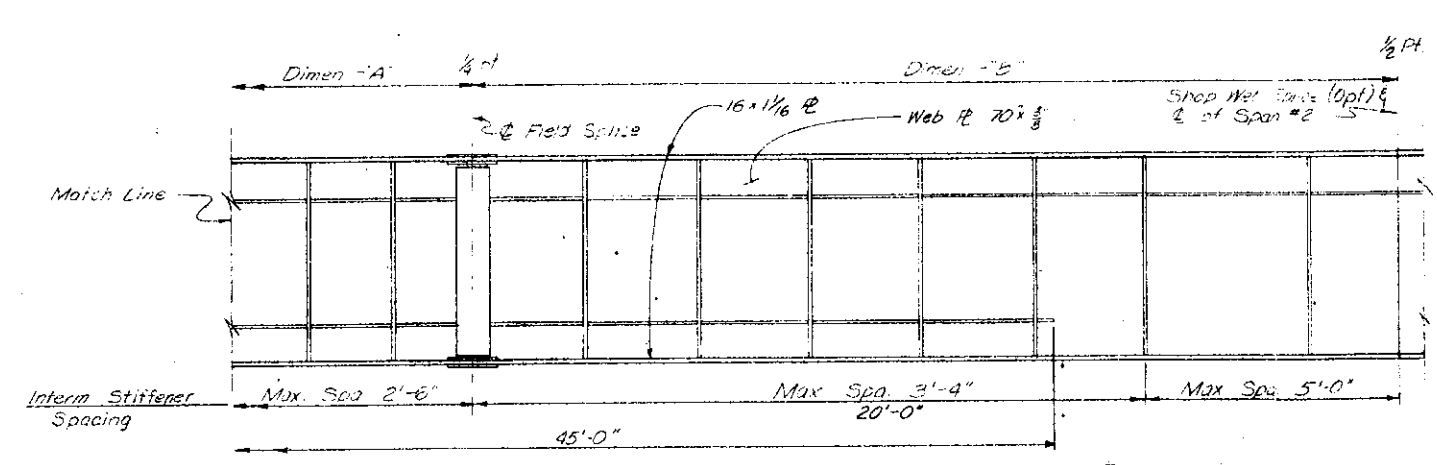
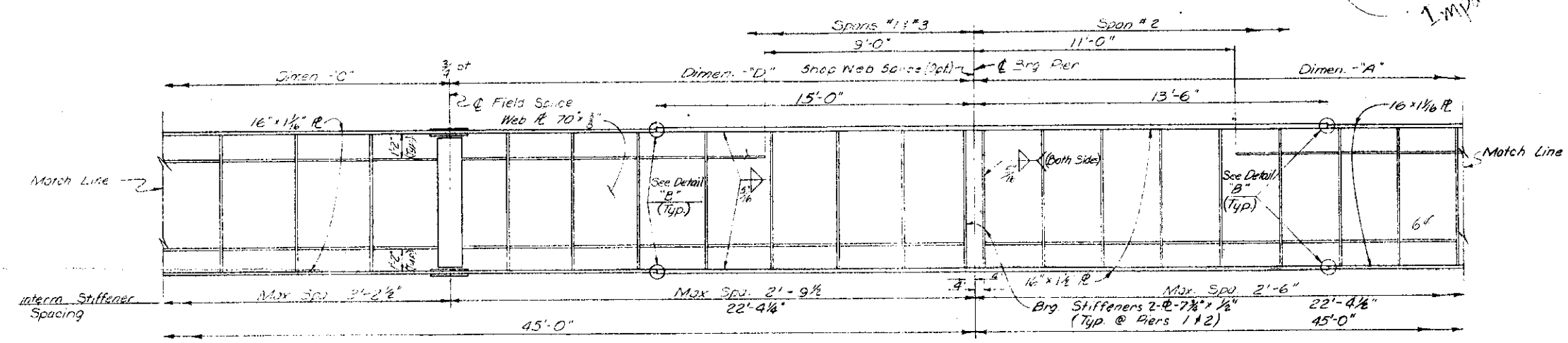
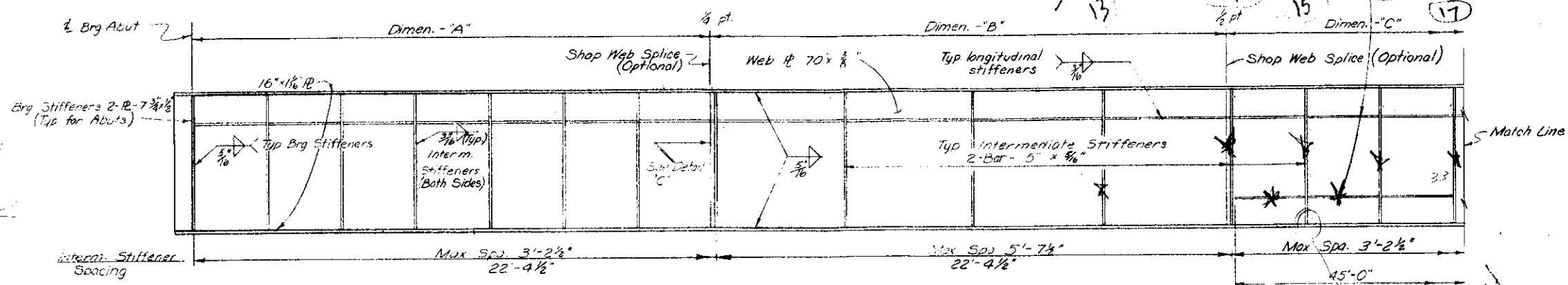
6/4/13

Beam 2

|           |       |         |       |
|-----------|-------|---------|-------|
| PROJ. NO. | STATE | PROJECT | TYPE  |
| 2         | OHIO  |         | FUNDS |

GUERNSEY COUNTY  
GUE. 40 - 8.93  
PART 2

445  
570

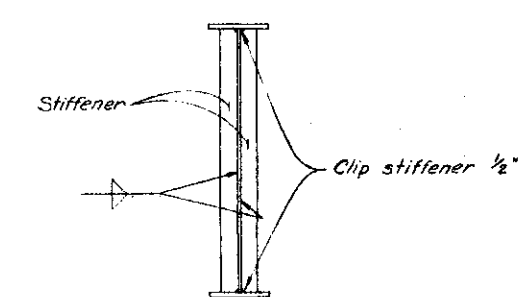


GIRDER ELEVATION

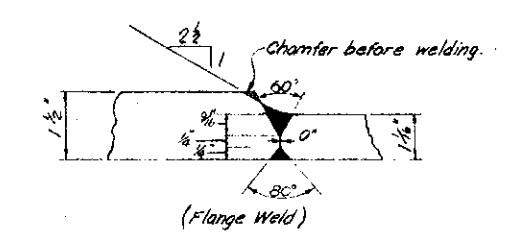
|         | TABLE OF DIMENSIONS |            |             |            |             |            |             |            |
|---------|---------------------|------------|-------------|------------|-------------|------------|-------------|------------|
|         | Dimen. - A'         |            | Dimen. - B' |            | Dimen. - C' |            | Dimen. - D' |            |
|         | Gdr. 1-4            | Gdr. 5     | Gdr. 1-4    | Gdr. 5     | Gdr. 1-4    | Gdr. 5     | Gdr. 1-4    | Gdr. 5     |
| Span #1 | 22'-4 1/2"          | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" |
| Span #2 | 27'-8 1/2"          | 27'-8 1/2" | 27'-9"      | 27'-8 1/2" |             |            |             |            |
| Span #3 | 22'-4 1/2"          | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" | 22'-4 1/2"  | 22'-4 1/2" |

Longitudinal stiffeners, Bar 5 x 5/8 one side only. Exterior girders shall have stiffener on inside face (Typ)

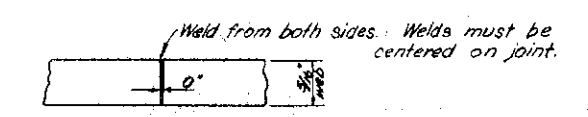
Replace Stiff'n Both Sides



TYPICAL SECTION THROUGH GIRDER



DETAIL 'B' (Shop Splice)



DETAIL 'C'

(See "Submerged Arc Note" on sheet 403)

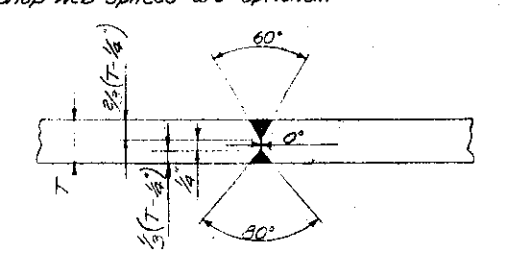
NOTES:

Bearing stiffeners shall be milled to provide bearing contact with flange plates. Intermediate stiffeners shall have close fit top and bottom.

1/8"  $\phi$  high strength bolts shall be used at the field splices. Bolt heads shall be placed on fascia side of exterior girders.

Intermediate stiffeners shall be spaced to miss field splice plates and  $\phi$  Brgs 1'-0" minimum. Locate intermediate stiffeners to serve as attachments for intermediate crossframes. If additional shop splices are necessary, their location and detail shall be submitted to the Director for approval.

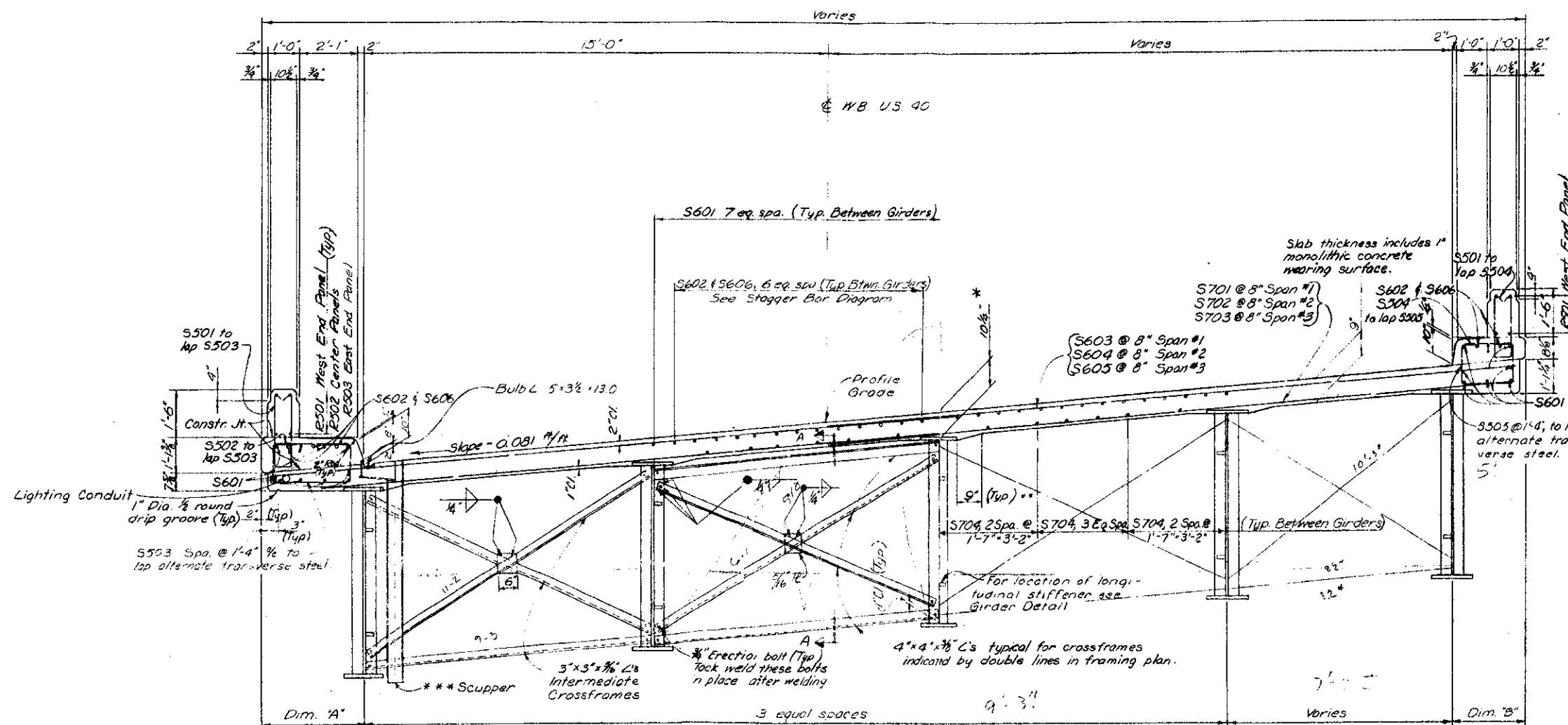
Longitudinal stiffeners shall stop 1" clear of stiffeners and field splice plates. Shop web splices are optional.



EQUAL FLANGES (Shop Splice)

|                                                                                  |       |         |          |         |         |
|----------------------------------------------------------------------------------|-------|---------|----------|---------|---------|
| ALDEN E. STILSON & ASSOCIATES, LIMITED<br>CONSULTING ENGINEERS<br>COLUMBUS, OHIO |       |         |          |         |         |
| GIRDER DETAILS                                                                   |       |         |          |         |         |
| BRIDGE NO. GUE. 40 - 0943 L                                                      |       |         |          |         |         |
| W.B.U.S. OVER WILLS CREEK                                                        |       |         |          |         |         |
| GUERNSEY COUNTY STA. 221+37.75 to STA. 224+32.26                                 |       |         |          |         |         |
| DESIGNED                                                                         | DRAWN | CHECKED | REVIEWED | DATE    | REVISED |
| FWD                                                                              | DWH   |         | JETTIN   | 7.25.63 |         |

62: 89, 119



**NOTES:**

\* This dimension is from the top of the slab to the top of the girder web and is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade.

S601 bars shall lap 1'-11"

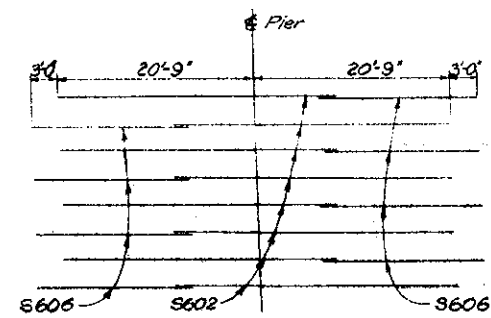
S704 bars shall lap 2'-2"

Concrete parapets are included in Item 9-14 for payment.

Transverse dimensions are normal to WB US 40.

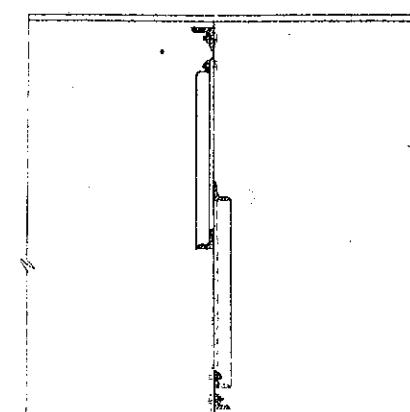
**DECK SLAB HAUNCH:** The haunch in the super-elevated deck slab adjacent to the top of steel girders which is shown as 9" wide may vary from this dimension between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. Except on the high side, the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on the 9" width.

Transverse reinforcing steel shall be placed parallel to Brgs. and spaced @ 8" along Reference Chord.



\*\*\* Use scupper shown on CSB-2-56 for beam flanges over 12 1/8".

TRANSVERSE SECTION  
(Railing Not Shown)



| SLAB CANTILEVERS |            |            |
|------------------|------------|------------|
| LOCATION         | DIM. 'A'   | DIM. 'B'   |
| @ West Abut.     | 3'-5"      | 2'-4"      |
| 1/4 Span #1      | 3'-1"      | 2'-8"      |
| 1/2 Span #1      | 2'-11 1/4" | 2'-9 1/4"  |
| 3/4 Span #1      | 3'-1"      | 2'-8"      |
| @ Pier #1        | 3'-5"      | 2'-4"      |
| 1/4 Span #2      | 2'-10 3/8" | 2'-10"     |
| 1/2 Span #2      | 2'-8 3/8"  | 3'-0"      |
| 3/4 Span #2      | 2'-10 3/8" | 2'-10 3/8" |
| @ Pier #2        | 3'-5"      | 2'-4"      |
| 1/4 Span #3      | 3'-1"      | 2'-7 3/8"  |
| 1/2 Span #3      | 2'-11 1/4" | 2'-9 3/8"  |
| 3/4 Span #3      | 3'-1"      | 2'-7 3/8"  |
| @ East Abut.     | 3'-5"      | 2'-4"      |

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COLUMBUS, OHIO

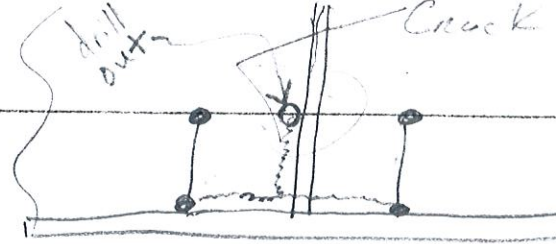
TRANSVERSE SECTION

BRIDGE No. GUE 40-0943 L

W.B. U.S. 40 OVER WILLS CREEK  
Sta. 221+37.75  
GUERNSEY COUNTY to 224+32.26

|          |       |         |          |         |
|----------|-------|---------|----------|---------|
| DESIGNED | DRAWN | CHECKED | REVIEWED | DATE    |
| FWD      | DWH   | BETTIN  | TZU      | 7.25.63 |

Impact

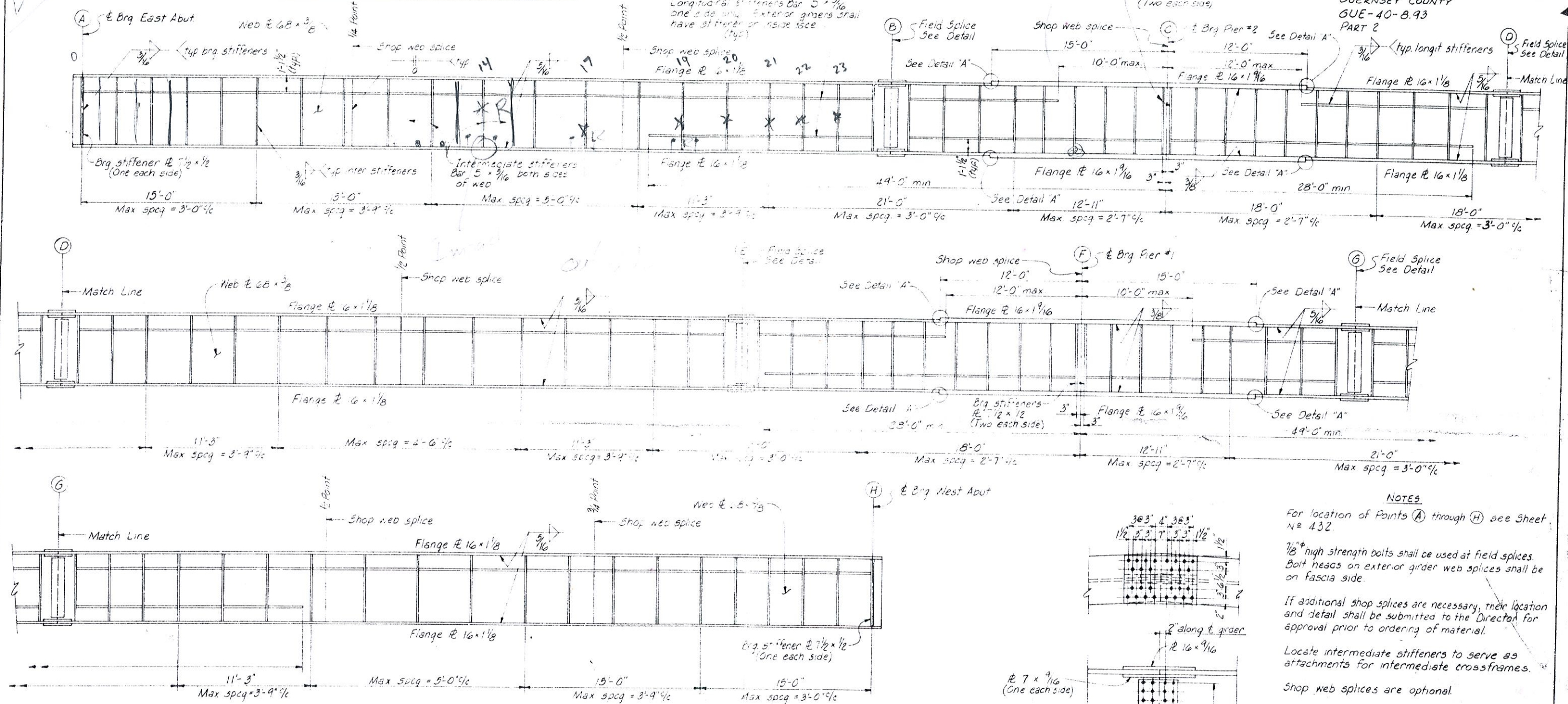


Repl stiffen  
#7 on inside  
Beam #1

Field  
Inspection  
Notes  
6/4/13

|   |      |     |     |
|---|------|-----|-----|
| 2 | OHIO | 431 | 570 |
|---|------|-----|-----|

GUERNSEY COUNTY  
GUE-40-B.93  
PART 2



**NOTES**  
For location of Points (A) through (H) see Sheet No. 432.  
1/8" high strength bolts shall be used at field splices. Bolt heads on exterior girder web splices shall be on fascia side.  
If additional shop splices are necessary, their location and detail shall be submitted to the Director for approval prior to ordering of material.  
Locate intermediate stiffeners to serve as attachments for intermediate crossframes.  
Shop web splices are optional.

**G-8**

GUE-10-0943A

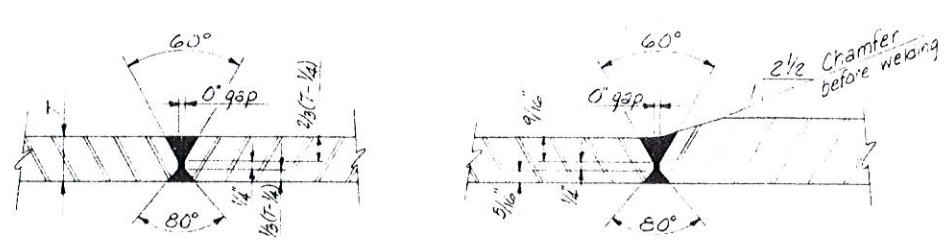
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CONSULTING ENGINEERS  
COLUMBUS, OHIO

GIRDER DETAILS

RAMP "A" OVER WILLS CREEK

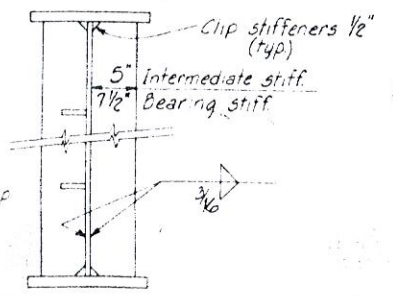
STA. 31+88.4  
STA. 34+97.2

|          |    |        |         |         |
|----------|----|--------|---------|---------|
| DESIGNED | BY | TRACED | CHECKED | DATE    |
| HT       |    |        |         | 7-23-63 |

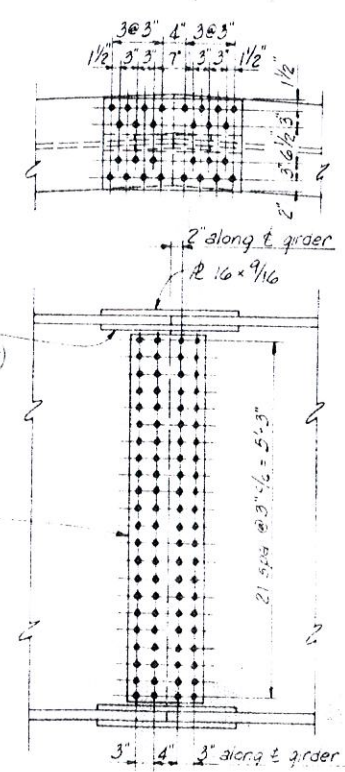


FLANGE SHOP SPLICE DETAILS  
(See "Submerged Arc Note" on sheet 403)

Intermediate stiffeners shall have close fit with top and bottom flanges. Bearing stiffeners shall be milled to provide bearing contact with top and bottom flanges. Longitudinal stiffeners shall stop 1" clear from intermediate or bearing stiffeners.

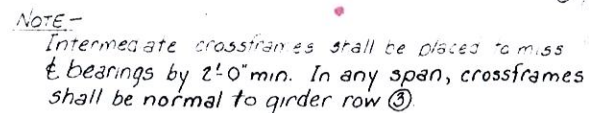


TYPICAL SECTION  
THRU GIRDER



GIRDER FIELD SPLICE DETAIL

432  
570



|                               |              | RIBS AND GIRDER LENGTHS |               |              |              |
|-------------------------------|--------------|-------------------------|---------------|--------------|--------------|
|                               |              | Girder Row ①            | Girder Row ②  | Girder Row ③ | Girder Row ④ |
| Bearing Point or Splice Point | (A) ①        | 24'-56"-42"             | 25'-15'-36"   | 25'-33'-01"  | 25'-53'-37"  |
|                               | Length (A-B) | 64'-8 1/16"             | 64'-16 7/16"  | 70'-0 1/16"  | 70'-3 1/16"  |
|                               | (B) ②        | 4'-15'-39"              | 4'-49'-38"    | 4'-53'-45"   | 4'-53'-00"   |
|                               | Length (B-C) | 23'-1 1/4"              | 23'-1 1/16"   | 23'-2 3/16"  | 23'-2 5/8"   |
|                               | (C) ③        | 0                       | 0             | 0            | 0            |
|                               | Length (C-D) | 29'-3 3/16"             | 29'-4 3/8"    | 29'-5"       | 29'-5 9/16"  |
|                               | (D) ④        | 4'-19'-07"              | 4'-22'-31"    | 4'-25'-59"   | 4'-29'-34"   |
|                               | Length (D-E) | 58'-4 9/16"             | 58'-4 1 1/16" | 58'-5 1/16"  | 58'-6 3/8"   |
|                               | (E) ⑤        | 4'-19'-26"              | 4'-22'-41"    | 4'-26'-01"   | 4'-29'-26"   |
|                               | Length (E-F) | 29'-1 3/8"              | 29'-1 1/2"    | 29'-1 1/16"  | 29'-1 1/8"   |
|                               | (F) ⑥        | 0                       | 0             | 0            | 0            |
|                               | Length (F-G) | 23'-5 5/16"             | 23'-5 1/16"   | 23'-5 9/16"  | 23'-5 3/4"   |
| (G) ⑦                         | 4'-46'-51"   | 4'-50'-19"              | 4'-53'-53"    | 4'-57'-31"   |              |
| Length (G-H)                  | 70'-0 7/8"   | 70'-1"                  | 70'-1 1/8"    | 70'-1 1/4"   |              |
| (H) ⑧                         | 6'-45'-38"   | 6'-50'-27"              | 6'-55'-22"    | 7'-00'-25"   |              |

| D E F L E C T I O N and C A M B E R |            |      |      |          |      |      |            |        |        |          |        |        |            |        |          |      |        |
|-------------------------------------|------------|------|------|----------|------|------|------------|--------|--------|----------|--------|--------|------------|--------|----------|------|--------|
|                                     | SPAN (A-C) |      |      |          |      |      | SPAN (C-E) |        |        |          |        |        | SPAN (E-H) |        |          |      |        |
|                                     | Interior   |      |      | Exterior |      |      | Interior   |        |        | Exterior |        |        | Interior   |        | Exterior |      |        |
| Location Point →                    | 1/4        | 1/2  | 3/4  | 1/4      | 1/2  | 3/4  | 1/4        | 1/2    | 3/4    | 1/4      | 1/2    | 3/4    | 1/4        | 1/2    | 3/4      | 1/4  | 1/2    |
| Defl due to wgt of steel            | 1/4        | 1/8  | 1/6  | 1/6      | 1/8  | 1/6  | 1/6        | 1/8    | 1/6    | 1/6      | 1/8    | 1/6    | 1/6        | 1/8    | 1/6      | 1/6  | 1/8    |
| Defl due to remaining CL            | 3/8        | 1/6  | 3/16 | 3/8      | 1/6  | 3/16 | 3/8        | 1/6    | 3/16   | 3/8      | 1/6    | 3/16   | 3/8        | 1/6    | 3/16     | 3/8  | 1/6    |
| Convex r/o for vertical curve       | 0          | 0    | 0    | 0        | 0    | 0    | -1/4       | -2 1/4 | -1 3/4 | -1/4     | -2 1/4 | -1 3/4 | -1/4       | -2 1/4 | -1 3/4   | -1/4 | -2 1/4 |
| Convex r/o for horiz curve          | -5/8       | -1/2 | -3/8 | -5/8     | -1/2 | -3/8 | -5/8       | -1/2   | -3/8   | -5/8     | -1/2   | -3/8   | -5/8       | -1/2   | -3/8     | -5/8 | -1/2   |
| Total Deflection                    | -3/16      | 1/6  | 5/8  | -3/16    | 1/6  | 5/8  | -3/8       | -9/8   | -1/2   | -3/6     | -1 1/6 | -5/6   | -3/4       | -1 1/6 | -5/6     | -3/4 | -1 1/6 |
| Req'd shop camber                   | 0          | 0    | 0    | 0        | 0    | 0    | 0          | -1 5/8 | -7/8   | 0        | -1 5/8 | -7/8   | 0          | -1 5/8 | -7/8     | 0    | -1 5/8 |

GU-70-0943A

ALDEN E. STILSON & ASSOCIATES, LIMITED  
CONSULTING ENGINEERS  
COLUMBUS, OHIO

RAMP "A" OVER WILLE CREEK

GUERNSEY COUNTY STA 31 + 88.44  
STA 34 + 97.26

|          |       |         |          |          |                 |
|----------|-------|---------|----------|----------|-----------------|
| DESIGNED | DRAWN | CHECKED | TIME REC | REVIEWED | DATE            |
| 06.03    | HT    |         |          |          | 06.03 TLU 72363 |